Royal College of Physicians | Coleg Brenhinol y Meddygon (Cymru)

Call for evidence: Sepsis Inquiry

RCP Cymru Wales response

About us

Our 36,000 members worldwide, including 1,300 in Wales, work in hospitals and the community across 30 different clinical specialties, diagnosing and treating millions of patients with a huge range of medical conditions, including stroke, care of older people, diabetes, cardiology and respiratory disease. We campaign for improvements to healthcare, medical education and public health.

In Wales, we work directly with health boards and other NHS Wales organisations, including Health Education and Improvement Wales; we carry out regular local conversation hospital visits to meet patients and staff; and we collaborate with other organisations to raise awareness of public health challenges.

We organise high-quality conferences, teaching and workshop events that attract hundreds of doctors every year. Our work with the Society of Physicians in Wales aims to showcase best practice through poster competitions and trainee awards. We also host the highly successful biennial RCP membership and fellowship ceremony for Wales.

To help shape the future of medical care in Wales, visit our website:
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To tell us what you think – or to request more information – email us at:
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30 October 2019
An inquiry into Sepsis for Health and Social Care

Thank you for the opportunity to respond to your inquiry into sepsis for the health and social care department.

The Royal College of Physicians (RCP) has worked with consultant physicians, trainee and specialty doctors, and members of our patient carer network in Wales to produce this response. We would be happy to organise further written or oral evidence if that would be helpful.

Name of organisation:	Royal College of Physicians (RCP) Cymru Wales
Lead contact:	Graduate trainee policy and campaigns adviser
Contact detail:	

Our response in a nutshell

Presentation and outcome: Early recognition is vital for the successful treatment of a patient. It is estimated that if a patient is managed following the Sepsis Six bundle within the first 24 hours of diagnosis, it could save 14,000 lives every year within the UK. Making a sepsis diagnosis remains difficult, particularly when the presentation of sepsis is in a patient that has a pre-existing life-threatening condition. Due to the Sepsis Six pathway, an increasing number of people survive sepsis.

Medical understanding: There is a coherent and consistent awareness among the medical community of the multifaceted definition of sepsis. The confusion lies with the scoring of sepsis outside of the acute hospital setting, and concern of over-prescribing antibiotics as a result of current guidelines, that may be inappropriate for treatment of suspected sepsis.

Public understanding: The public are becoming increasingly aware of the condition, primarily as a result of a successful campaign from the Sepsis Trust, Sepsis awareness month, and the depiction of sepsis on television dramas such as Call the Midwife.

Life after sepsis: Sepsis does not end with hospital discharge. There are support groups in place to help those who have been affected by sepsis. Nevertheless, there needs to be an improved commitment to patients who have suffered from sepsis. This commitment needs to be based on the individuals needs as the presentation and sequelae of sepsis varies from case to case.

What understanding is there about sepsis incidence, how sepsis is presenting to services, and outcomes from sepsis.

Sepsis, a generic multi-organ condition, is understood to be a complication of various infections rather than a syndrome in itself. An infection can start anywhere in the body including but not isolated to - a chest infection causing pneumonia, a urine infection, problem in the abdomen such as appendicitis, infectious diarrhoea, a wound from trauma or injury, an infected cut or bite, a leg ulcer or cellulitis, a dental abscess, meningitis or an infection of unknown source.

Definitions of Sepsis
>Sepsis = SIRS* + presumed or confirmed infection = 10% mortality.
>Severe sepsis = SIRS + presumed or confirmed infection + end organ dysfunction = 35% mortality.
>Septic shock = SIRS + presumed or confirmed infection + hypoperfusion** = 50% mortality.

Criteria for end organ dysfunction are as follows:
>Systolic blood pressure <90 mmHg or >40 mmHg fall from baseline, or mean arterial pressure <65 mmHg.
>Bilateral pulmonary infiltrates with new need for oxygen to maintain saturations >90%, or with PaO2/FiO2 ratio <300 (mmHg) or 39.9 (kPa).
>Lactate >2.0 mmol/l. >Serum creatinine >176.8 µmol/l or urine output <0.5 ml/kg/hr for 2 successive hours.
>INR (international normalisation ratio) >1.5 or aPTT (activated partial thromboplastin time) >60 s.
>Platelet count <100x109/l. >Bilirubin >34.2 µmol/l.

*SIRS = systemic inflammatory response syndrome (see Box 1).
**Where hypoperfusion is defined as systolic blood pressure <90 mmHg, mean blood pressure <65 mmHg, a fall of >40 mmHg from the patient's usual systolic blood pressure persisting after delivery of at least 30 ml/kg body weight intravenous fluids; or a lactate >4 mmol/l.

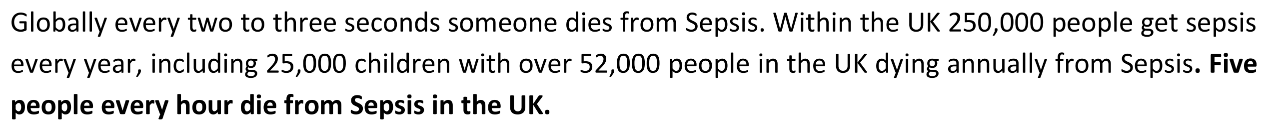
(*Royal College of Physicians, Sepsis Toolkit, 2014*)

The scale of sepsis incidents

The scale and impact of sepsis is largely known within the medical community. Nevertheless, there are substantial gaps in knowledge.

'The historic variability of sepsis coding along with the fact that there is a spectrum from mild infection through to life-threatening sepsis makes it difficult to accurately determine the true impact of sepsis both on individuals and on use of healthcare resources' (NHS England 2015).

Nevertheless, it has been determined that sepsis, a globally recognised condition, can affect anyone, although certain people are at an even higher risk; adults over sixty, children under one, individuals with weakened immune systems, individuals with chronic diseases, people with no spleen.



Globally every two to three seconds someone dies from Sepsis. Within the UK 250,000 people get sepsis every year, including 25,000 children with over 52,000 people in the UK dying annually from Sepsis**. Five people every hour die from Sepsis in the UK.**

The scale of the problem is unprecedent with Sepsis killing more people than; RTC's, HIV, bowel, breast, & prostate cancer combined, and more than lung cancer. Sepsis **is estimated to costs the NHS two billion pounds a year.**

Presentation of Sepsis in a secondary care setting

The presentation of sepsis varies enormously and is dependent on the timeframe in which it is suspected. As sepsis is a time sensitive condition it responds well to early intervention and, if required, rapid escalation of therapy. Medical professionals across the health sector should possess the knowledge and skills to identify sepsis and initiate resuscitation if appropriate.

When a person is admitted with suspected sepsis, they should get treatment within the hour to prevent further organ dysfunction and failure. The treatment, known as the sepsis six bundle, was developed by founders of the UK sepsis trust in 2005 as an operational solution to a set of complex yet robust guidelines developed by the international surviving sepsis campaign. Sepsis six is a combination of three diagnostic and three therapeutic steps.

Sepsis Six Treatment
The treatment of a patient with sepsis in the first 24 hours.

"Oxygen – Cannula, Bloods + Cultures – Lactate – IV Antibiotics – Fluid Resuscitate – Fluid Balance/ Consider Catheter"

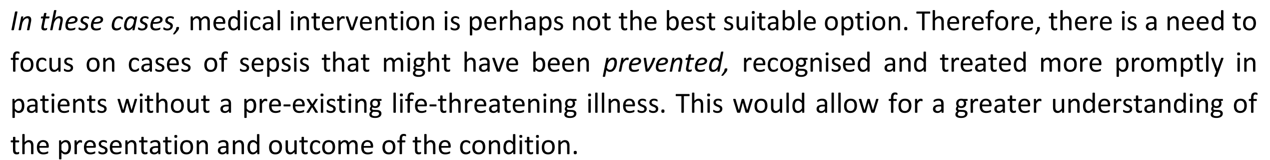
If sepsis six treatment is given to the patient within the first hour of the conditions presentation **it is estimated that it has the potential to save 14,000 lives every year.**

Outcome of sepsis diagnosis

250,000 people get sepsis in *the* UK every year including 25,000 children. Over 52,000 people in the UK die annually from sepsis. Five people every hour die from sepsis in the UK. The statistics for Wales are less clear as the information available is limited. This needs to be addressed.

'Whilst about 30% of all ICU patients in the UK have severe sepsis, there are no data published on the incidence of sepsis on the general wards in Wales' (Szakmany et al. 2015: 1000).

A high proportion of deaths *relating to sepsis* are in elderly patients with comorbidities. As a result, it is difficult to separate the presentation and treatment of sepsis from a pre-existing life-threatening illness.



In these cases, medical intervention is perhaps not the best suitable option. Therefore, there is a need to focus on cases of sepsis that might have been *prevented,* recognised and treated more promptly in patients without a pre-existing life-threatening illness. This would allow for a greater understanding of the presentation and outcome of the condition.

Sepsis does not end at hospital discharge. 60,000 patients survive sepsis every year, however, many are left with permanent life changing effects; loss of limbs, anxiety, fatigue, poor memory, difficulty sleeping, sadness, difficulty swallowing, difficulty concentrating, muscle weakness.

Public awareness of sepsis

There has been a considerable growth in awareness of the broad sepsis definition among the general public. A substantial awareness campaign led mainly by the Sepsis Trust has been very successful in raising public and political awareness of the condition. Combined with Sepsis Awareness Month and the depiction of sepsis on television programmes such as Call the Midwife and Casualty has contributed to the increased public awareness of the condition.

There is a hope that the publicity of the condition will increase patients' and relatives' awareness that sepsis may be responsible for unexplained ill-defined symptoms, enable earlier presentation to medical care, and empower patients and families to raise the possibility of sepsis themselves.

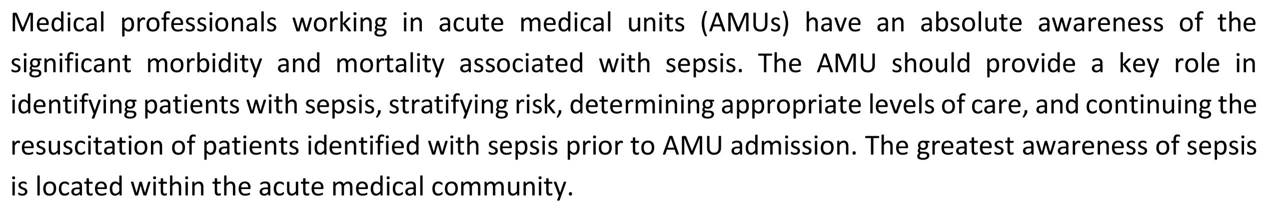
The public are familiar with terms such as blood poisoning, and terms that refer to specific infections, such as pneumonia, etc. Although the term sepsis has been used successfully to advocate for greater recognition of the signs in the community, it is unclear if use of the term has helped the public understand its severity, that it may not always have been preventable, or that some types of sepsis are inherently more dangerous than others

Professional awareness of sepsis

There is a strong awareness of sepsis within the professional medical community, with medical professionals expressing knowledge of the condition, its symptoms and causes. Amongst the medical community sepsis is broadly considered as a number of very different bacterial infections coupled with the body's response to those infections

A result of the complex definition and various stages of sepsis, medical professionals have expressed a level of uncertainty surrounding the specifics of the condition. The complexity of the definition has created the misunderstanding of sepsis as a syndrome rather than its true form as a diagnosis and/or condition. Whilst this is not a fundamental flaw within the medical community's knowledge, the misunderstanding has created a level of confusion.

'The nomenclature is still often confused as the term for urinary sepsis that can be used to mean pyelonephritis or a simple urinary tract infection but does not mean a full-blown sepsis syndrome' (Consultant Physician, 2019).



Medical professionals working in acute medical units (AMUs) have an absolute awareness of the significant morbidity and mortality associated with sepsis. The AMU should provide a key role in identifying patients with sepsis, stratifying risk, determining appropriate levels of care, and continuing the resuscitation of patients identified with sepsis prior to AMU admission. The greatest awareness of sepsis is located within the acute medical community.

'There is an absolute awareness of sepsis within the acute medicine setting' (RCP Trainee Representative, 2019).

Identification and management of sepsis in out-of-hospital settings, including use of relevant screening tools/guidance, and the referral process between primary/secondary care.

Identification and management of sepsis in out-of-hospital settings, includes the use of relevant screening tools/guidance, and the referral process between primary/secondary care. There remains a level of confusion within out-of-hospital settings as the evidence base guidance tools such as the NEWS scores are unavailable for out of hospital use and importantly are a clinical judgement based on the understanding of the patient and their symptoms rather than the scoring systems.

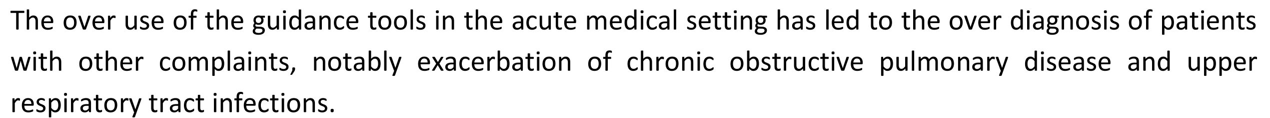
Furthermore the PHEWS (Pre-hospital early warning score), used by paramedics and ambulance staff is a generic severity score and does not indicate if a patient is presenting with sepsis or is at risk of developing the condition.

Identification/management of sepsis in acute (hospital) settings.

Identification and management of the condition has improved as the medical community's sensitivity for picking up sepsis and treating the condition has increased. Within ABUHB there has been, and continue to be, a commitment to improving identification and treatment of sepsis. The ABCSEPSIS team are working to achieve process reliability through the use of NEWS, the sepsis screening tool, bundles and protocols, changing culture through influencing behaviour and establishing standards, and application of human factors to "error proof" the improvements that have been made with the focus being on using real time data to drive the improvements required. ABCsepsis work collaboratively with IPCT (Infection Prevention and Control Teams) microbiology and pharmacy, along with ward teams, outreach and 1000lives.

However, there is a concern surrounding the prescribing of such a board spectrum of antibiotics. Whilst the identification of sepsis has improved, there is a risk of the development of antibiotic resistance and of complications such as C.Difficile infection. The fact that patients who do not have sepsis end up having antibiotics is due to the lack of specificity of sepsis symptoms. As such, it is perhaps inevitable that a number of other conditions get treated as sepsis in the first 24 hours of an admission/event.

'Anecdotally it feels as if there are also many patients who are reflexly treated for sepsis who do not have it and this is an issue for us in that sepsis is treated with high dose broad spectrum antibiotics' (Consultant Physician 2019).



The over use of the guidance tools in the acute medical setting has led to the over diagnosis of patients with other complaints, notably exacerbation of chronic obstructive pulmonary disease and upper respiratory tract infections.

Further to this, medical professionals have seen people *'harmed by the liberal use of intravenous fluids as recommended by the guidelines' (Consultant physician 2019).* Additionally, patients labelled as '*septic*' through the use of the guidance tools are invariably admitted despite eventually receiving another diagnosis.

The physical and mental impact on those who have survived sepsis, and their needs for support.

Sepsis does not end at hospital discharge

As Sepsis is a generic condition, triggered by a variety of infectious causes in patients of widely differing age groups, the support needed will be dependent on individual circumstances. Existing services within the NHS should be able to support these patients, provided there is a recognition that the ages affected may be broad; this is not a challenge specific to sepsis.

In addition the focus of infection will dictate whether surgery has been required and the level of support required on discharge. For example, necrotising fasciitis may require amputations and physiotherapy, while a urinary tract or gall bladder infection will not necessarily lead to any focal defect if the patient recovers.

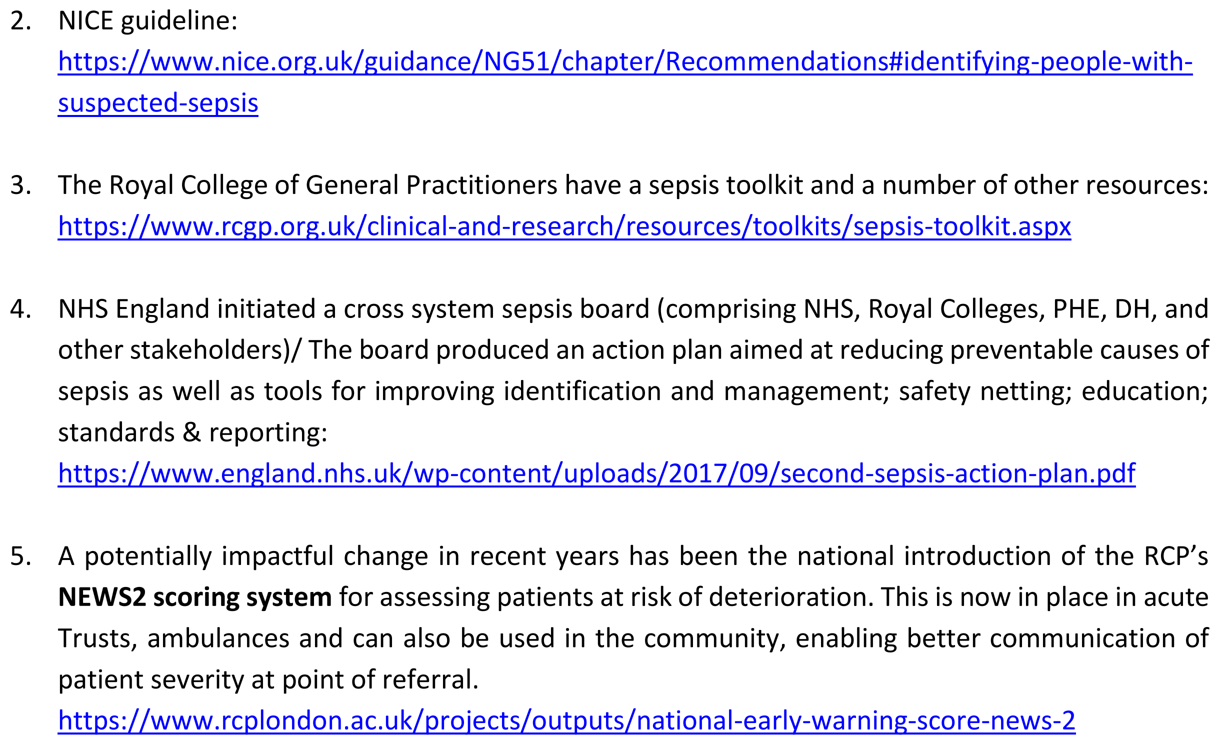
In extreme settings, certain patients may need lifelong social care, for example patients who have suffered from an amputation, while others may need kidney dialysis. Others may have no visible physical disability, but may be affected by the psychological after-effects of critical illness. In the extreme setting of maternal sepsis, there is a possibility of the loss of an infant, or even the mother, in which case extensive support is required for the remaining family.

NICE guidelines for supporting the patient recovering from critical illness are available and most intensive care units provide additional clinical support for patients and families discharged from their units. These guidelines are fully available for support sepsis patients.
https://www.nice.org.uk/guidance/cg83

Further Evidence

In terms of professional awareness and the recognition and management of sepsis there has been much advocacy and guidance.

1. Health Education England e-learning tool:
   https://www.e-lfh.org.uk/programmes/sepsis/



2. NICE guideline: https://www.nice.org.uk/guidance/NG51/chapter/Recommendations#identifying-people-with-suspected-sepsis

3. The Royal College of General Practitioners have a sepsis toolkit and a number of other resources: https://www.rcgp.org.uk/clinical-and-research/resources/toolkits/sepsis-toolkit.aspx

4. NHS England initiated a cross system sepsis board (comprising NHS, Royal Colleges, PHE, DH, and other stakeholders)/ The board produced an action plan aimed at reducing preventable causes of sepsis as well as tools for improving identification and management; safety netting; education; standards & reporting: https://www.england.nhs.uk/wp-content/uploads/2017/09/second-sepsis-action-plan.pdf

5. A potentially impactful change in recent years has been the national introduction of the RCP's **NEWS2 scoring system** for assessing patients at risk of deterioration. This is now in place in acute Trusts, ambulances and can also be used in the community, enabling better communication of patient severity at point of referral. https://www.rcplondon.ac.uk/projects/outputs/national-early-warning-score-news-2

References

T. Szakmany et al. 2015. 'Sepsis in Wales on the general wards: results of a feasibility pilot', *British Journal of Anaesthesia.* 114 (6): 1000–10.